



**CASSINI**  
RESOURCES LIMITED

ASX Release (CZI)  
13 May 2020

## Drilling Commencing at Yarawindah Ni-Cu-PGE Project

### HIGHLIGHTS:

- Latest exploration results identify new targets for immediate drill testing
- Drill rig mobilised to site
- Surface electromagnetic survey underway over significant new soil anomaly northwest of Brassica Prospect
- Regional prospectivity enhanced by greater extent of host mafic-ultramafic intrusions
- Multiple exploration fronts to progress

Cassini Resources Limited (ASX:CZI) ("Cassini" or the "Company") is pleased to provide an update on exploration activities at the Yarawindah Brook Project (the "Project"). The Project is located on agricultural land 20km south of the township of New Norcia, 100km northeast of Perth, Western Australia.

The Project is prospective for nickel, copper, cobalt and platinum group elements (primarily palladium and platinum). The Company's view on this emerging new nickel-copper-cobalt-PGE province has been validated by Chalice Gold Mines recent high-grade discovery at the Julimar Project, approximately 40km south of Yarawindah, within the same mafic/ultramafic intrusive province.

### Soil and Electromagnetic Survey Results Present New Targets

The Company has recently completed a soil geochemistry program comprising 1,041 samples and surface electromagnetic (EM) surveys over an area of 3km<sup>2</sup>.

Soil geochemistry has identified a coincident Ni-Cu-Co and Pd-Pt anomaly approximately 750m to the northwest and along strike of the Brassica Prospect (Figure 1). The soil anomaly extends over 1km along strike and has peak values of 122ppm Ni, 644ppm Cu, 23ppm Co, 61ppb Pd & 86 ppb Pt, 10 times greater than background metal concentrations in the area. This soil anomaly is outside of the existing airborne and surface EM coverage and is a priority target. Significantly, the soil geochemical data over the Brassica Prospect, where minor Ni-Cu-PGE mineralisation was intersected in drilling last year are not anomalous in PGE. This suggests that this untested Brassica NW anomaly may be a significantly stronger and shallower mineralised position.

A surface EM survey over the new Brassica NW soil anomaly is underway. The survey, utilising the latest SQUID technology, is expected to take 10 days to complete. Potential new EM conductors, which may represent massive sulphide accumulations, will be a high priority for immediate drill testing. A late-time conductive anomaly, referred to as XC06, was previously identified by ground EM surveying on the southern edge of this new NW Brassica soil geochemical anomaly, at the limit of previous EM surveying. This anomaly has not previously been drilled and is plausibly part of a larger system of conductive bodies.

Concurrently, a diamond drill rig has also been mobilised to site to test several EM conductors that have been identified by the recent fixed loop EM survey north of the Ovis and Avena Prospects. A number of EM conductors have been identified and are supported by significant Ni-Cu & PGE results from historical and/or recent drilling and latest soil geochemistry results. A total of four holes for approximately 800m will be drilled, with each hole testing a separate EM and/or geological/geochemical target within the central Yarawindah Project area (Figure 2). At this stage, a 5<sup>th</sup> hole is contingent on results from the current EM survey at Brassica NW and review of the XCO6 anomaly.

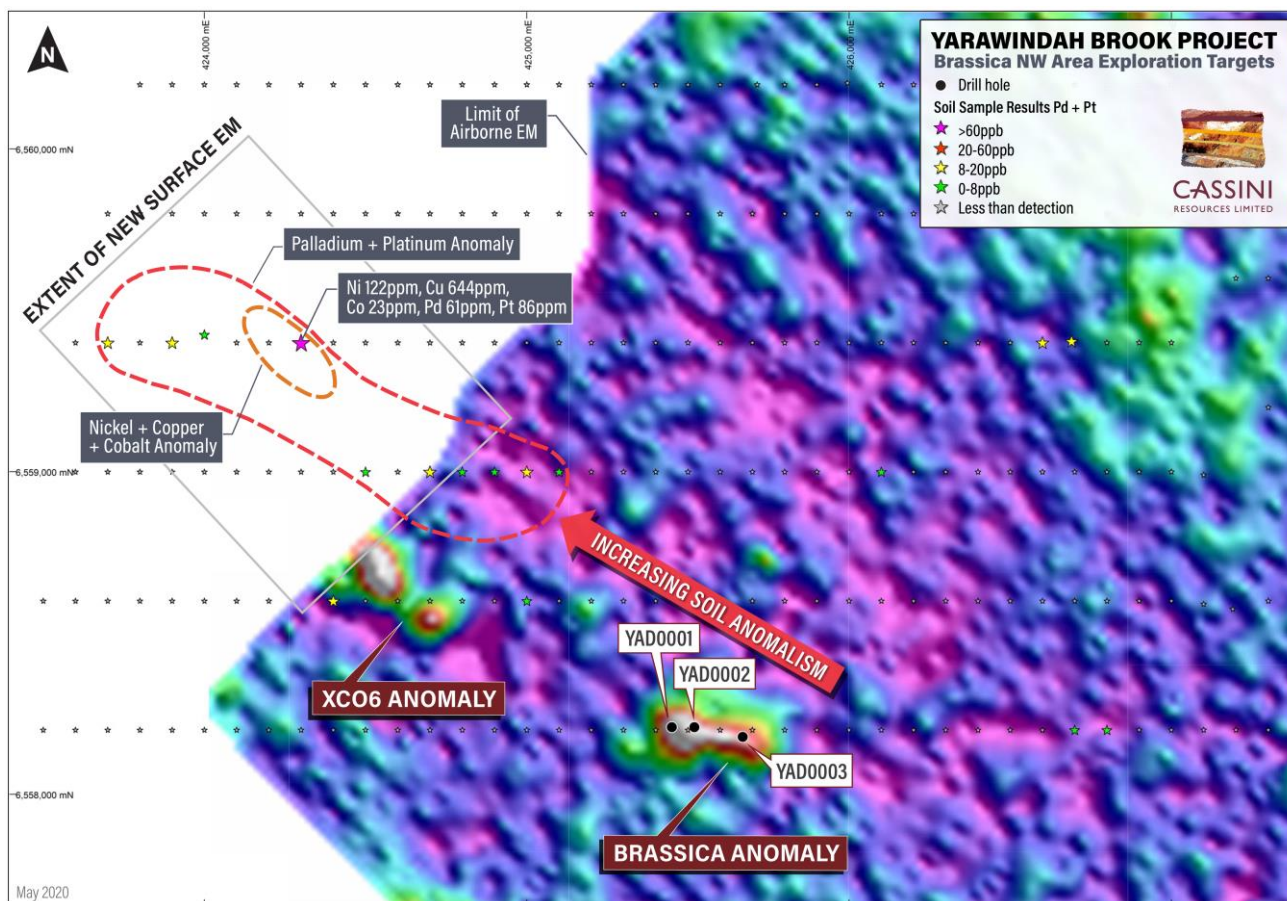
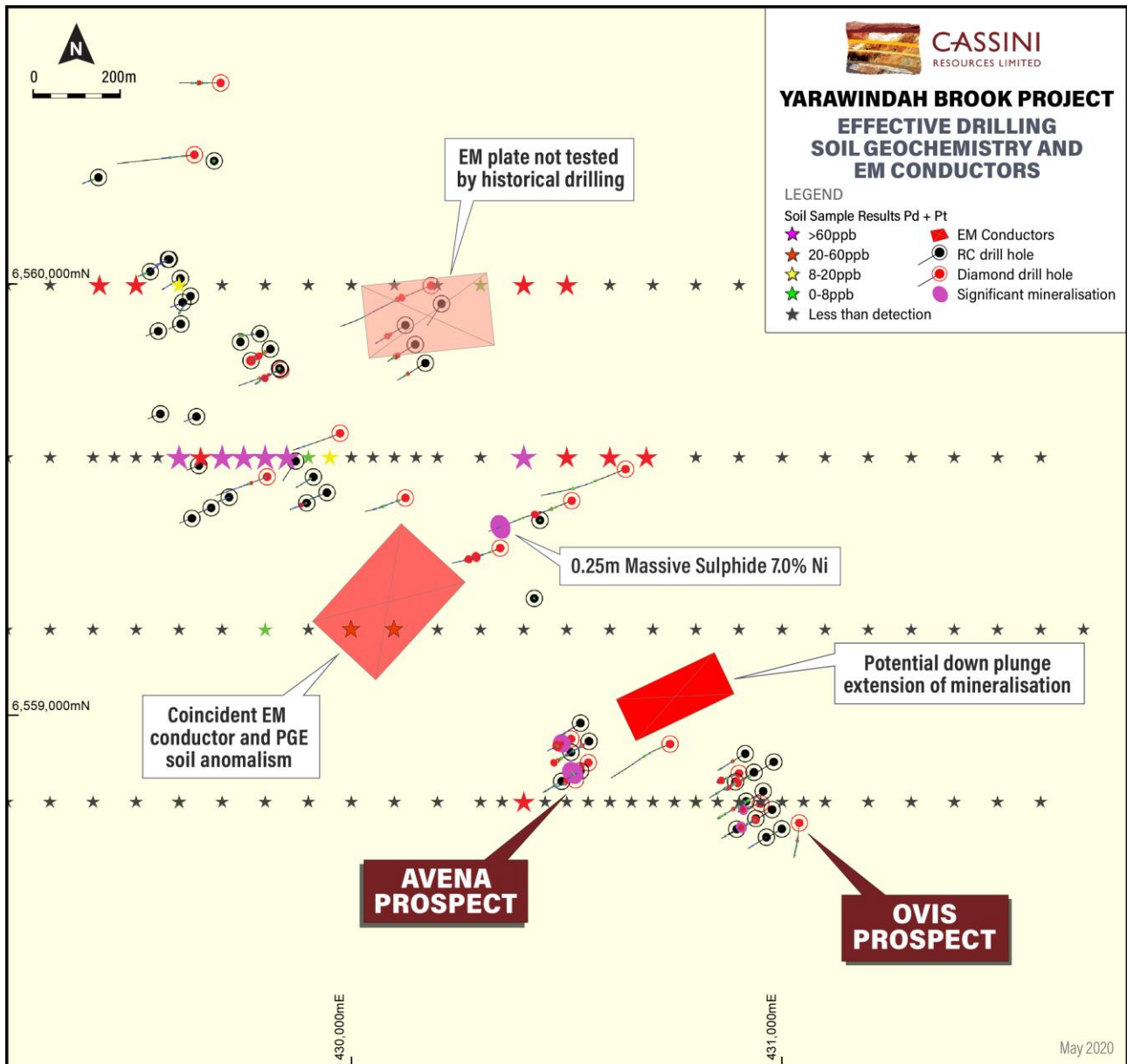


Figure 1. Brassica NW area showing PGE soil results and new target area for EM surveying.

### Regional Prospectivity Enhanced by New Results

On ground exploration activities to date at Yarawindah have largely been focussed on a small portion of the Project centred around existing prospects due to constraints by the current land access agreements. The airborne EM survey completed in 2018 however has covered a much larger area within the existing tenement holding and these results have now been integrated with all other geological and geophysical data sets in our latest geological interpretations and targeting work. One of the important findings from this work is that mafic/ultramafic intrusions, which are generally considered to have relatively strong magnetic responses, may be effectively invisible in the magnetic data across the Project and are therefore likely to be significantly more extensive than previously believed. This significantly increases the extent of prospective host rocks and the exploration search space for Ni-Cu-PGE mineralisation within the Cassini project area.

Recently collected soil geochemical data has confirmed that this exploration method is well suited to the New Norcia Nickel Province, as it clearly highlights existing Ni-Cu and PGE prospects, identifies new anomalies and also maps different intrusive and basement lithologies. This technique provides a simple, low-cost and very effective tool to explore the Company's broader regional holdings. Soil results also support the finding that mafic/ultramafic lithologies are more extensive than previously believed.



**Figure 2.** Effective drilling (>50m depth with Ni + Cu assays), soil geochemistry and EM conductors.

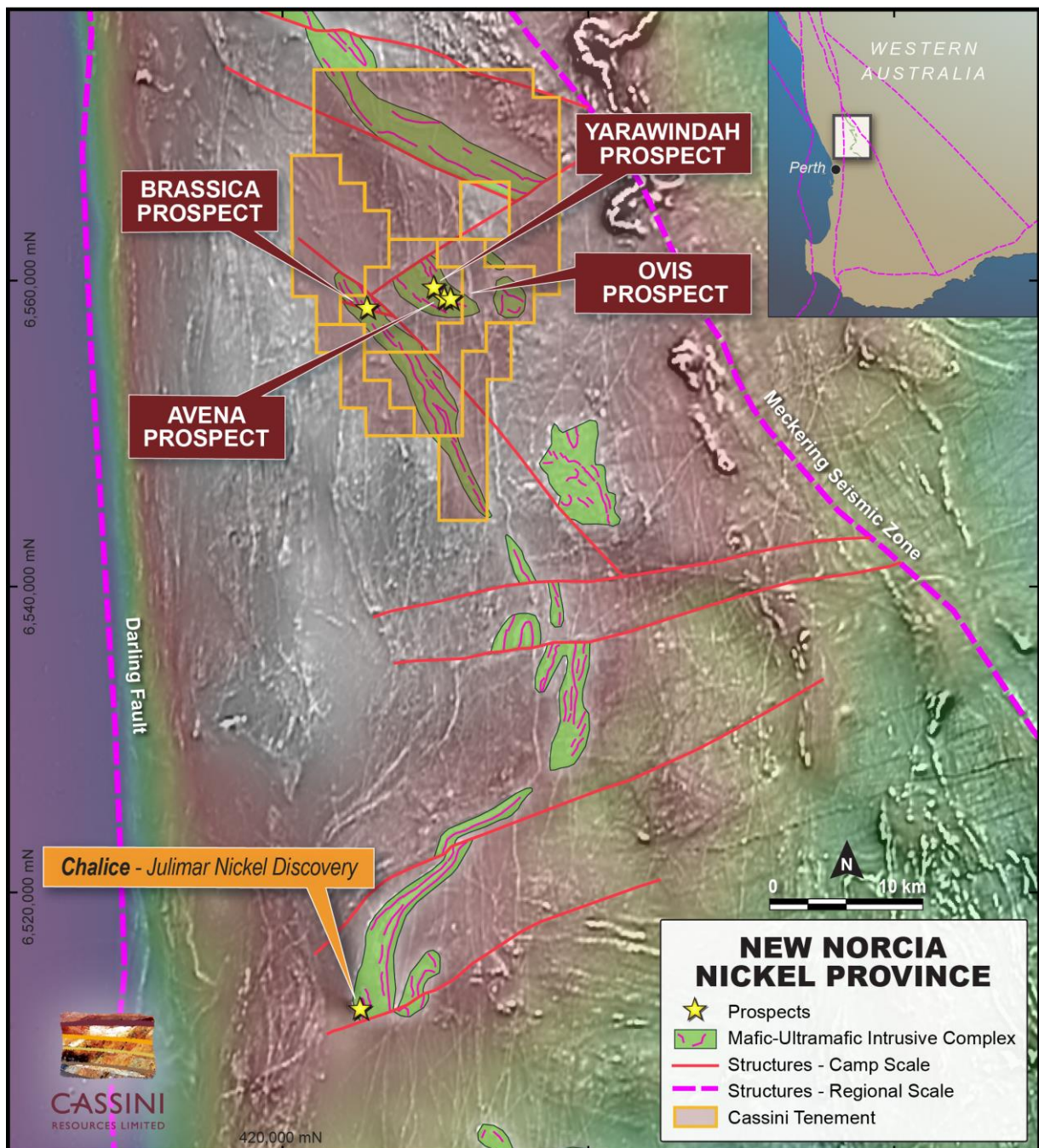
The upcoming program is the first step in a transition to project-scale exploration in a systematic fashion utilizing a range of new datasets and exploration methods. Our exploration work to date has indicated a greater extent of prospective host rocks than previously thought and highlighted a number of new, high-quality regional targets that need to be followed up. The first steps in project-scale exploration will include a staged expansion of the airborne EM coverage and soil geochemistry. The Company is also actively progressing land access approvals across the Project.



## Regional Context

Cassini's views on the strong potential of the region to host significant Ni-Cu-PGE mineralisation has been validated by Chalice Gold Mines recent high-grade sulphide discovery at the Julimar Project, approximately 40km south of Yarawindah. (Figure 3).

Such prospective mafic/ultramafic intrusive complexes are commonly associated with major regional gravity highs, which represent deeper-level accumulations of mafic material in the crust. This is also believed to be the case for the New Norcia Province. Importantly, Cassini's Yarawindah Project overlies the central part of the gravity anomaly near the intersection of two terrane-bounding structures.



**Figure 3.** Regional map of the New Norcia Nickel Province with known Ni-Cu-PGE prospects, interpreted mafic/ultramafic intrusions and key structures. Background is magnetics (greyscale) draped over gravity (hot colours representing highs) to demonstrate the potential source of mafic/ultramafic intrusions.

## Project Background

The Yarawindah Brook Project is located 100km northeast of Perth, on agricultural land near the township of New Norcia. The Company has a 80% beneficial interest in the Project which is prospective for nickel, copper, cobalt and platinum group elements (PGE's, namely palladium and platinum). Kalgoorlie-based prospector, Mr Scott Wilson, retains a 20% interest in the Project.

The Project has had limited nickel, copper and cobalt exploration, despite a favourable regional setting, prospective geology and near-surface occurrences of nickel and copper mineralisation. Previous drilling in 2007 returned several significant intercepts of sulphide mineralisation such as 7m @ 1.30% Ni, 0.22% Cu, 0.06% Co and 432ppb Pd from 74m (YWRC0083). No follow-up drilling was conducted.

The Yarawindah Brook project area was targeted by the Company because it represents a mafic-ultramafic intrusive complex, located at a major regional-scale structural intersection of the Darling Fault and the Meckering seismic zone. Such tectonic intersections are a first-order control on the formation of major Ni-Cu-PGE sulphide deposits. Several phases of previous exploration have confirmed the presence of Ni-Cu-PGE magmatic sulphides, associated with mafic and ultramafic intrusive rocks.

The Company completed an airborne electromagnetic survey (AEM) over the project in early 2018 identifying numerous conductors worthy of further investigation (see ASX Announcement 2 May 2018). A surface fixed loop electromagnetic (FLEM) survey was also completed over several of the higher priority AEM anomalies in order to confirm and better constrain the conductors prior to drilling.

The FLEM reinforced the XC05 (Brassica) and XC06 anomalies as priority targets as well as the AN01 (Ovis) and AN02 (Avena) conductors at the southern end of the main Yarawindah Prospect. The Company considers these results very encouraging for new target areas at a very early stage of exploration. The results to date have already demonstrated the Project's potential to host multiple magmatic nickel and copper deposits, given the Brassica and Avena Prospects are some 4km apart, with limited exploration between.

The Company has implemented appropriate health and safety protocols to deal with the COVID-19 pandemic to ensure the health and safety of its employees, contractors and communities in which it operates. Exploration at Yarawindah has been unaffected by recent travel restrictions in Western Australia and the Company expects to be able to advance its exploration programs over the coming months.

This report has been authorised for release by:

**Richard Bevan**  
Managing Director

Cassini Resources Limited  
Telephone: +61 8 6164 8900  
E-mail: [admin@cassiniresources.com.au](mailto:admin@cassiniresources.com.au)

## **About the Company**

Cassini Resources Limited (ASX: CZI) is a base and precious metals developer and explorer based in Perth. In April 2014, Cassini acquired its flagship West Musgrave Project (WMP), located in Western Australia. The Project is a new mining camp with three existing nickel and copper sulphide deposits and a number of other significant regional exploration targets already identified. The WMP is the largest undeveloped nickel - copper project in Australia.

In August 2016, Cassini entered into a three-stage \$36M Farm-in/Joint Venture Agreement with prominent Australian mining company OZ Minerals Ltd (ASX: OZL). The Joint Venture provides a clear pathway to a decision to mine and potential cash flow for Cassini.

Cassini is also progressing its Mt Squires Gold Project (CZI 100%), and the Yarawindah Brook Nickel - Copper - Cobalt Project (CZI 80%), both located in Western Australia.

## **Competent Persons Statement**

The information in this report that relates to Exploration Results is based on information compiled or reviewed by Mr Greg Miles, who is an employee of the company. Mr Miles is a Member of the Australian Institute of Geoscientists and has sufficient experience of relevance to the styles of mineralisation and the types of deposits under consideration, and to the activities undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Miles consents to the inclusion in this report of the matters based on information in the form and context in which it appears.

The Company is not aware of any new information or data, other than that disclosed in this report, that materially affects the information included in this report and that all material assumptions and parameters underpinning Exploration Results, Mineral Resource Estimates and Production Targets as reported in the market announcements dated 29 January 2018, 19 February 2018, 2 May 2018, 14 January 2020 & 16 April 2020 continue to apply and have not materially changed.

## ANNEXURE 1:

The following Tables are provided to ensure compliance with the JORC Code (2012) edition requirements for the reporting of the Exploration Results at the Yarawindah Brook Project.

### Section 1: Sampling Techniques and Data (Criteria in this section apply to all succeeding sections)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<i>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</i>	<b>Cassini Geochemical Sampling</b> <ul style="list-style-type: none"> <li>Surface soil and auger soil samples were collected by Cassini personnel on a 400x100m and 400x50m grid across the Project.</li> <li>Surface soil samples were collected by digging a 30x30x20cm pit, homogenising and then collecting a bulk 1-2kg sample.</li> <li>Auger soil samples were collected by digging a 10-30cm pit to the base of cultivated soil and then augering to 50cm depth with a 1-2kg bulk sample collected.</li> <li>Soil samples were submitted to ALS (Wangara) for determination of Au, Pt and Pd and 48 elements.</li> </ul>
	<i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i>	Sampling has been carried out under Cassini protocols and QAQC procedures as per industry best practice.
	<i>Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</i>	<b>Cassini Geochemical Sampling</b> Samples were dried at low temperature (max 60°C) and sieved to -180µm before analysis by Fire Assay and ICP-AES for Au, Pt and Pd and 4-acid digest with ICP-MS and ICP-AES finish for 48 elements.
Drilling techniques	<i>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic etc) and details (e.g. core diameter, triple of standard tube, depth of diamond tails, face-sampling bit or other type, whether core is orientated and if so, by what method, etc).</i>	No drilling undertaken.
Drill sample recovery	<i>Method of recording and assessing core and chip sample recoveries and results assessed.</i>	No drilling undertaken.
	<i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i>	No drilling undertaken.
	<i>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</i>	No drilling undertaken.
Logging	<i>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</i>	No drilling undertaken.
	<i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i>	No drilling undertaken.
	<i>The total length and percentage of the relevant intersections logged.</i>	No drilling undertaken.



Criteria	JORC Code explanation	Commentary
<b>Sub-sampling techniques and sample preparation</b>	<i>If core, whether cut or sawn and whether quarter, half or all core taken.</i>	Not applicable.
	<i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i>	Samples were screened at the lab to 180µm.
	<i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i>	The sample type, size, fraction and analysis methodology has been assessed by a consultant geochemist and found to be appropriate for the project area.
	<i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i>	Field QC procedures involve the use of certified reference material (CRM) as assay standards and blanks along with field duplicates. The insertion rate of these averages 1:25.
	<i>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i>	Analysis of field duplicates confirms the sampling is representative of the in situ material collected.
	<i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	Sample sizes are considered appropriate for the regolith type, style of mineralisation, the sampling methodology and assay ranges for the primary elements within the Yarawindah Brook Project.
<b>Quality of assay data and laboratory tests</b>	<i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i>	<b>Cassini Soil Samples</b> <ul style="list-style-type: none"> <li>• All soil samples were submitted to ALS in Wangara.</li> <li>• Samples were submitted as bulk 1-2kg samples.</li> <li>• Samples were dried at the lab at low temperature (max of 60°C) before being screened to -180µm.</li> <li>• Au, Pt, and Pd were determined by fire assay fusion – lead flux with Ag collector using 30g lead fire assay with ICP-AES finish.</li> <li>• 48 elements were determined by four acid “near total” digest on 0.25g of sample with analysis by ICP-MS and ICP-AES.</li> <li>• This method is considered total for Au, Pt and Pd and near total for 48 elements.</li> </ul>
	<i>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i>	Not applicable.
	<i>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</i>	<p>Laboratory QAQC involves the use of internal lab standards using certified reference material, blanks, splits and replicates as part of the in-house procedures.</p> <p>Certified reference materials, having a good range of values, are inserted blindly and randomly.</p> <p>Repeat or duplicate analysis for samples did not highlight any issues..</p>
<b>Verification of sampling and assaying</b>	<i>The verification of significant intersections by either independent or alternative company personnel.</i>	Not applicable.
	<i>The use of twinned holes.</i>	Not applicable.
	<i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i>	<ul style="list-style-type: none"> <li>• Geochemical sample coordinates and geological information was recorded in field books and coordinates and track data from handheld GPS's was saved.</li> <li>• Field data is entered into Excel spreadsheets and sent to Geobase Australia for validation and compilation into a SQL database server.</li> </ul>



Criteria	JORC Code explanation	Commentary
	<i>Discuss any adjustment to assay data.</i>	No assay data has been adjusted.
<b>Location of data points</b>	<i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i>	Reported samples have been located with a Garmin hand-held GPS with an accuracy of ±5m. This is considered appropriate for exploration soil sampling.
	<i>Specification of the grid system used.</i>	The grid system for the Yarawindah Brook Project is GDA94 MGA Zone 50.
	<i>Quality and adequacy of topographic control.</i>	The tenement package exhibits subdued relief with undulating hills and topographic representation is sufficiently controlled.
<b>Data spacing and distribution</b>	<i>Data spacing for reporting of Exploration Results.</i>	Data spacing is 400x100m and 400x50m over selected areas.
	<i>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i>	The soil sample spacing and distribution is not sufficient to establish the degree of geological and grade continuity appropriate for a Mineral Resource.
	<i>Whether sample compositing has been applied.</i>	No compositing was applied.
<b>Orientation of data in relation to geological structure</b>	<i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i>	At this early stage of exploration, mineralisation thickness, orientation and geometry are not known.
	<i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i>	No drilling undertaken.
<b>Sample security</b>	<i>The measures taken to ensure sample security.</i>	Sample chain of custody is managed by Cassini. Samples for the Yarawindah Brook Project are stored on site and delivered to the assay laboratory by Cassini.
<b>Audits or reviews</b>	<i>The results of any audits or reviews of sampling techniques and data.</i>	A review of an orientation geochemical survey was undertaken by an external consultant geochemist to ascertain the most appropriate, effective sampling and analysis methodology for the Yarawindah Brook Project. The results showed the methodology employed by Cassini and reported in this announcement is appropriate for the regolith type and mineralisation styles encountered in the project area.

## Section 2: Reporting of Exploration Results (Criteria listed in the preceding section also apply to this section)

Criteria	JORC Code explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<i>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</i>	Yarawindah Brook Project is located approximately 15km SSE of New Norcia in the SW of Western Australia and comprises three granted Exploration Licence (E70/4883, E70/5166 and E70/5116). Tenements are held by Southwest Metals Pty Ltd of which Cassini Resources Limited has acquired 80%, and Mr Scott Wilson, retains a 20% interest.  Cassini has entered into land access and compensation agreement with the property owners on which Yarawindah Brook, Avena, Ovis and Brassica Prospects are situated.
	<i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i>	All tenements are in good standing and have an existing Aboriginal Heritage Access Agreements in place. No Mining Agreement has been negotiated.

Criteria	JORC Code explanation	Commentary
Exploration done by other parties	<i>Acknowledgment and appraisal of exploration by other parties.</i>	The Yarawindah Brook Project area has been explored for Ni-Cu-PGE mineralisation since the discovery of outcropping Ni-Cu gossans in 1974. A series of drill programmes conducted by various companies since that time mainly focused on near-surface, laterite-hosted PGE mineralisation culminating in the definition of a (historical, non-JORC compliant) resource of 2.9 Mt at 0.79 g/t Pt+Pd (at 0.5 g/t cut-off) by Reynolds/AuDAX in 1989. Later drilling programmes and limited electromagnetic surveying was conducted by Washington Resources, resulting in intersections of massive Ni-Cu-PGE sulphides, however, on-ground exploration on the project area has been limited since the GFC in 2008. The work completed by previous operators is considered by Cassini to be of a high standard.
Geology	<i>Deposit type, geological setting and style of mineralisation.</i>	<p>The Yarawindah Brook Project is located within the Jimperding Metamorphic Belt hosted in the Lake Grace Terrane at the SW end of the Yilgarn Craton. In the area of the Yarawindah Brook, outcrop is poor with deep regolith development. Regionally, the lithological trend is NW, with moderate to steep dips to the NE.</p> <p>The western portion of the project area is dominated by metasediments and gneiss containing lenses of mafic and ultramafic rocks. It is these mafic-ultramafic lithologies that are the hosts to Ni-Cu- PGE sulphide mineralisation and have been the main targets for exploration.</p> <p>The Yarawindah Brook Project is considered prospective for accumulations of massive, matrix and disseminated Ni-Cu sulphides, both within the mafic-ultramafic complex and as remobilised bodies in the country rocks.</p>
Drill hole information	<p><i>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:</i></p> <ul style="list-style-type: none"> <li>• <i>easting and northing of the drill hole collar</i></li> <li>• <i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i></li> <li>• <i>dip and azimuth of the hole</i></li> <li>• <i>down hole length and interception depth</i></li> <li>• <i>hole length.</i></li> </ul>	No drilling undertaken.
	<i>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</i>	Not applicable, all information is included.
Data aggregation methods	<i>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</i>	Not applicable.
	<i>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</i>	Not applicable.
	<i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i>	Not applicable.

<b>Criteria</b>	<b>JORC Code explanation</b>	<b>Commentary</b>
<b>Relationship between mineralisation widths and intercept lengths</b>	<i>These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</i>	No drilling undertaken.
<b>Diagrams</b>	<i>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</i>	Refer to Figures in body of text.
<b>Balanced reporting</b>	<i>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</i>	Figures within the announcement show locations and results of all relevant soil samples collected for the Brassica Prospect.
<b>Other substantive exploration data</b>	<i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i>	All relevant exploration data is shown on figures, in text and Annexure 1.
<b>Further work</b>	<i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).  Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i>	A discussion of further exploration work is outlined in the body of the report. Further exploration work will be determined based on the ongoing drill and surface geochemistry results, further geophysical surveys and geological interpretations.  All relevant diagrams and inferences have been illustrated in this report.